

Date: Wednesday, 3/26/2008 1:26:34 PM  
User: Kim Johnston

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : ROUND BILLET 17-4
Job Number : 38210	
Estimate Number : 10039	
P.O. Number :	Part Number : D6104003
This Issue : 3/26/2008 S.O. No. :	Drawing Number : D6104 REV B
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : MACHINED PARTS	Drawing Revision : B
Previous Run : 38209	Material :
Written By :	Due Date : 4/4/2008 Qty: 10 Um: Each
Checked & Approved By : <i>[Signature]</i> 08 03 26	
Comment : Est. 01.09.04 Revised Step 2 SM	

### Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	PG	PURCHASING
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Comment: PURCHASING

Issue P/O: *5994*

a) Description: S.S round billet

b) Ø3.25" x 3.80" long

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)

e) One blank makes 2 parts

f) Material certification required

*C 08/03/26*

*(10)*

2.0	D6104003P	17-4 SS Roundbar 3.25"OD
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 10.0000 Each(s)  
17-4 SS Roundbar 3.25"OD

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure material certification is attached

*08/04/04*

*(10)*

4.0	QC6	DIMENSIONAL CHECK
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Comment: DIMENSIONAL CHECK

Ensure Material certification comply to Dwg D6104

*08/04/04*

*(10)*

*(10)*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08/04/04	4.0	all piece too long between 100" - 200" n/a controlled						

NOTE: Date & initial all entries

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Drawing Name: ROUND BILLET 17-4

Job Number: 38210

Part Number: D6104003

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: CNC

*Handwritten:* 08-05-07 (10)

6.0

QC21

FINAL INSPECTION/W/O RELEASE



*Handwritten:* 08/04/08

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



*Handwritten:* MF 08-04-07

*Handwritten:* W

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

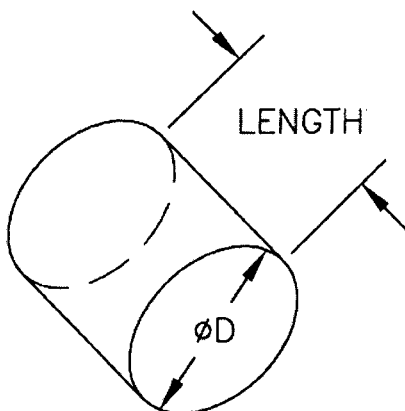


DESIGN RT	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29

## SPECIFICATION CONTROL DRAWING



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 38210

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**VALBRUNA**

**SLATER STAINLESS, INC.**  
2400 Taylor Street West, P.O. Box 630  
Fort Wayne, Indiana USA 46801  
Phone: 260-434-2892 Fax: 260-434-2905

**Product Certification Report**Report Number: **4021580****4546**

Certified on Dec 14, 2004 Page 1 of 1

Order I.D. <b>0400619 004</b>		Order Date <b>10/15/04</b>		Commodity Code	
Dim 1 <b>3.2500</b>	Dim 2 <b>.0000</b>	Dim 3 <b>.0000</b>	Heat I.D. <b>238610</b>	Customer I.D. <b>002476</b>	Customer Purchase Order <b>410001204</b>
Product Shape <b>Rounds</b>			Product Surface <b>HR &amp; Rough Turned</b>		Customer Grade <b>17-4</b>
Length (Inches) <b>132.000 Min. 156.000 Max.</b>			Bill of Lading # <b>400439</b>	Weight	

**Ship  
To**

Attention: KEVIN MACNEIL  
VALBRUNA CANADA LTD.  
8724 HOLGATE CRESCENT  
MILTON, ONTARIO L9T5Z1

**Sold  
To**

VALBRUNA CANADA LTD.  
8724 HOLGATE CRESCENT  
MILTON, ONTARIO L9T5Z1

**Lifts: 0044**

CONDITION A

EN 10204 3.1B

UNS S17400

ASTMA 564-02

ASMESA 564 01 ED 2002 ADD

AMS 5643Q

**CHEMICAL ANALYSIS**

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	N	Cb	Ta	Cb+Ta
.041	.58	.027	.020	.55	15.55	4.66	.25	3.44	.04	.28	.001	.28

HB

363

**TENSILE PROPERTIES  
CAPABILITY**

HB	TS (PSI)	.2%YS (PSI)	%EL(2")	%RA	AGE(F)
444	223000	196700	13.4	45.0	900

**MAGNETIC PARTICLE TEST**

FREQ SEV

AVG .00 .00

**MACRO ASTM E340/E381**

MACRO

OK

OK

OK

**PERCENT FERRITE**

% FERRITE

AVG .8

No mercury or low melting alloy contamination. No weld repair.

Chemical testing performed to one or several of the following ASTM methods: E415, E572, E1019, E1085, E1086.

Material melted in Italy, manufactured in the United States.

Material conforms to listed specifications.

Quality system is compliant with ISO 9001:2000. Produced in accordance with EN 10204 3.1B.

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info.

I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

Dennis Hackett

**CERTIFICATE OF TESTS**  
 CERT SERIAL# 000578891

**ABNAHMEPRUEFZEUGNIS**
**CERTIFICAT DE CONTROLE**

**TALLEY METALS**  
**A Carpenter Company**

 Talley Metals Technology, Inc.  
 205 Talley Metals Lane  
 McBee, SC. 29101 Tel: (610) 208-2000 (800) 338-4592

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01/22/07

CUSTOMER / BESTELLER / CLIENT

SELLER / VERKAUFER / VENDEUR PAGE 1 OF 2

 MAGNA INOXIDABLE STAINLESS, INC  
 525 MELOCHE AVE.  
 DORVAL  
 QUEBEC  
 H9P 2W2 , CANADA

 TALLEY METALS TECH, INC.  
 ACCOUNTS PAYABLE  
 P. O. BOX 2498  
 HARTSVILLE , SC 29551

CUSTOMER ORDER NO. / BESTELL-NR. / N° DE COMMANDE

CARPENTER NO. / WERKS-NR. / N° DE REFERENCE INTERNE

DATE / DATUM / DATE

WEIGHT / GEWICHT / POIDS

063970-JC-008

W53994

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEUR:

G12470

 PRODUCT DESCRIPTION: TYPE 17-4 SOLUTION ANNEALED ROUGH TURNED  
 -----

 SPECIFICATION: TALLEY 174-T1A CAP OF H900 (01/11/99)  
 -----

AMS 2303 REV E (10/ /01)

AMS 2315 (REAFFIRMED) REV E (04/ /06)

AMS 5643 REV Q (01/ /03) (EXCEPT CD ROUND CHEM &amp; MECH PROPS ONLY)

ASTM-A484-05A

ASTM-A564-04

ASME-SA564 2004 EDITION

SIZE 4.000000 IN. (101.60 MM) RD BAR

PRIMARY HEAT CHEMISTRY (WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM)

MN (XRF)

SI (XRF)

P (XRF)

S (COM)

15.38 CR (XRF)

4.22 NI (XRF)

0.26 MO (XRF)

3.73 CU (XRF)

0.030 N (FUS)

0.26 CB (XRF)

LT .01 TA (XRF)

CB+TA

0.27

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HB

321

(MIDRADIUS)

MAGNETIC PARTICLE: FREQUENCY = 0 / SEVERITY = 0

MICROSTRUCTURE - FERRITE

.49%

SOLUTION ANNEALED - 1900 F, 1 HOUR - RAPID COOL

CONTINUED ON NEXT PAGE

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 (REV)  
 282  
 35